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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,291

07/26/2006

Ferdi Schuth

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NORRIS, MCLAUGHLIN & MARCUS, P.A.
875 THIRD AVE
18TH FLOOR
NEW YORK, NY 10022

EXAMINER

BUI, DUNG H

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

03/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/564,291	Applicant(s) SCHUTH ET AL.	
	Examiner DUNG BUI	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/10/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 01/10/06 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the following information referred to therein has not been considered: (1) DE 10163697; (2) HEUNG L. K. et al; "Silica embedded metal hydrides"; Journal of Alloys and Compounds, Elsevier Sequoia, Lausanne, CH; Vol. 293-295, December 20, 1999; pages 446-451; (3) GUAY P., et al; "On the control of carbon nanostructures for hydrogen storage applications"; Carbon XX, XX, Vol. 42, No. 11; (2004); pages 2187-2193; and (4) ROSI, N. L. et al; "Hydrogen storage in microporous metal-organic frameworks"; Science, Vol. 300; May 16, 2003; pages 1127-1129, since applicant has not provided a copy of said documents.

Specification

1. The abstract of the disclosure is objected to because 2 abstracts are provided on 01-10-06 , the abstract filed with the specification and the abstract provided via PCT, it is unclear which abstract applicant intends to be the abstract of record. Applicant should provide a new abstract with any filed response so as to insure no ambiguity upon publication. Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claim 9 is objected to because of the following informalities:

Claim 9 recites "A method of storing and eleasing hydrogen". Should be replaced with "A method of storing and releasing hydrogen".

Claim 4 recites "rear-earth metal and/or rear-earth metal compound". Should be replaced with "rare-earth metal and/or rare-earth metal compound". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-5, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Heung (US 6,432,379).

Regarding claim 1, Heung discloses the claimed invention for material comprising a hydrogen storage component selected from alkali alanate, a mixture of aluminum metal with alkali metal and/or alkali metal hydride and magnesium hydride and mixtures thereof, wherein the hydrogen storage component is encapsulated in a porous matrix (abstract).

Regarding claim 4, Heung discloses all of limitation as set forth above. Heung discloses the claimed invention for wherein the hydrogen storage component comprises a transition metal, transition metal compound, rear-earth metal and/or rear-earth metal compound (column 5, lines 33-48).

Regarding claim 7, Heung discloses all of limitation as set forth above. Heung discloses the claimed invention for a vehicle comprising a fuel cell system supplied with hydrogen from a material according to claim 1 (column 1, lines 22-25).

Regarding claim 9, Heung discloses all of limitation as set forth above. Heung discloses the claimed invention for a method of storing and releasing hydrogen, comprising: a) providing a material according to claim 1; and b) storing and releasing hydrogen from material (abstract).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heung (US 6,432,379) as applied to claim 1 above in view of Antonelli (US 7,078,130).

Regarding claim 2, Heung discloses all of limitation as set forth above. Heung discloses the claimed invention except for wherein said porous matrix is selected from solid inorganic materials. Antonelli teaches that it is known to have wherein said porous matrix is selected from solid inorganic materials (Antonelli – column 1, lines 33-41). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide wherein said porous matrix is selected from solid inorganic materials as taught by Antonelli in order to have low cost and thermal stability.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heung (US 6,432,379) as applied to claim 1 above in view of MacGillivray (US 2009/0000474).

Regarding claim 3, Heung discloses all of limitation as set forth above. Heung discloses the claimed invention except for wherein said porous matrix comprises porous metal organic frameworks. Macgillivray teaches that it is known to have said porous matrix comprises porous metal organic frameworks (abstract). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide said porous matrix comprises porous metal organic frameworks as taught by MacGillivray in order to improve storage efficiency.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heung (US 6,432,379) in view of DeFilippi et al (US 5,503,738).

Regarding claim 5, Heung discloses all of limitation as set forth above. Heung discloses the claimed invention for process for preparing a material comprising a hydrogen storage component selected from alkali alanate, a mixture of aluminum metal with alkali metal and/or alkali metal hydride and magnesium hydride and mixtures thereof. Heung does not disclose the steps of impregnating a porous matrix material with a solution and/or suspension of said hydrogen storage components in an organic solvent and removing the organic solvent. DeFilippi et al teaches that it is known to have the steps of impregnating a porous matrix material with a solution and/or suspension of said hydrogen storage components in an organic solvent and removing the organic solvent (column 7, lines 1-5). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to inherent the steps of impregnating a porous matrix material with a solution and/or suspension of said hydrogen storage components in an organic solvent and removing the organic solvent as taught by DeFilippi et al in order to have a capacity of absorbing more than one pollutants.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heung (US 6,432,379) in view of Golben (US 6,508,866).

Regarding claim 8, Heung discloses all of limitation as set forth above. Heung discloses the claimed invention except for wherein said solid inorganic materials are selected from the group consisting of porous carbon, mesostructured carbon, carbon xerogel, carbon aerogel, silica aerogel, silica xerogel, and zeolite. Golben teaches that it is known to have wherein said solid inorganic materials are selected from the group

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consisting of porous carbon, mesostructured carbon, carbon xerogel, carbon aerogel, silica aerogel, silica xerogel, and zeolite (column 1, lines 45-53). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have said solid inorganic materials are selected from the group consisting of porous carbon, mesostructured carbon, carbon xerogel, carbon aerogel, silica aerogel, silica xerogel, and zeolite as taught by Golben in order to increase composite material performance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG BUI whose telephone number is (571)270-7077. The examiner can normally be reached on Mon. - Thurs., 7:30 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DUANE SMITH/
Supervisory Patent Examiner, Art
Unit 1797

DB